

## SEQUENCE LISTING

<110> COMMISSARIAT A L'ENERGIE ATOMIQUE  
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE  
DIDEBERG Otto  
VERNET Thierry  
MOUZ Nicolas

<120> STREPTOCOCCUS PNEUMONIAE PBP2x MINI-PROTEIN AND USES THEREOF.

<130> F263FR79s

<140>

<141>

<160> 9

<170> PatentIn Ver. 2.1

<210> 1

<211> 551

<212> PRT

<213> Streptococcus pneumoniae

<400> 1

Gly Ser Gly Ala Lys Arg Gly Thr Ile Tyr Asp Arg Asn Gly Val Pro  
1 5 10 15

Ile Ala Glu Asp Ala Thr Ser Gly Gly Pro Asn Arg Ser Tyr Pro Asn  
20 25 30

Gly Gln Phe Ala Ser Ser Phe Ile Gly Gly Met Glu Ser Ser Leu  
35 40 45

Asn Ser Ile Leu Ala Gly Gly Asp Gly Lys Asp Val Tyr Thr  
50 55 60

Thr Ile Ser Ser Pro Leu Gln Ser Phe Met Glu Thr Gln Met Asp Ala  
65 70 75 80

Phe Gln Glu Lys Val Lys Gly Lys Tyr Met Thr Ala Thr Leu Val Ser  
85 90 95

Ala Lys Thr Gly Glu Ile Leu Ala Thr Thr Gln Arg Pro Thr Phe Asp  
100 105 110

Ala Asp Thr Lys Glu Gly Ile Thr Glu Asp Phe Val Trp Arg Asp Ile  
115 120 125

Leu Tyr Gln Ser Asn Tyr Glu Pro Gly Ser Thr Met Lys Val Met Met  
130 135 140

Leu Ala Ala Ala Ile Asp Asn Asn Thr Phe Pro Gly Gly Glu Val Phe  
145 150 155 160

Asn Ser Ser Glu Leu Lys Ile Ala Asp Ala Thr Ile Arg Asp Trp Asp  
165 170 175

Val Asn Glu Gly Leu Thr Gly Gly Arg Thr Met Thr Phe Ser Gln Gly  
180 185 190

Phe Ala His Ser Ser Asn Val Gly Met Thr Leu Leu Glu Gln Lys Met  
195 200 205

Gly Asp Ala Thr Trp Leu Asp Tyr Leu Asn Arg Phe Lys Phe Gly Val  
210 215 220

Pro Thr Arg Phe Gly Leu Thr Asp Glu Tyr Ala Gly Gln Leu Pro Ala  
225 230 235 240

Asp Asn Ile Val Asn Ile Ala Gln Ser Ser Phe Gly Gln Gly Ile Ser  
245 250 255

Val Thr Gln Thr Gln Met Ile Arg Ala Phe Thr Ala Ile Ala Asn Asp  
260 265 270

Gly Val Met Leu Glu Pro Lys Phe Ile Ser Ala Ile Tyr Asp Pro Asn  
275 280 285

Asp Gln Thr Ala Arg Lys Ser Gln Lys Glu Ile Val Gly Asn Pro Val  
290 295 300

Ser Lys Asp Ala Ala Ser Leu Thr Arg Thr Asn Met Val Leu Val Gly  
305 310 315 320

Thr Asp Pro Val Tyr Gly Thr Met Tyr Asn His Ser Thr Gly Lys Pro  
325 330 335

Thr Val Thr Val Pro Gly Gln Asn Val Ala Leu Lys Ser Gly Thr Ala  
340 345 350

Gln Ile Ala Asp Glu Lys Asn Gly Gly Tyr Leu Val Gly Leu Thr Asp  
355 360 365

Tyr Ile Phe Ser Ala Val Ser Met Ser Pro Ala Glu Asn Pro Asp Phe  
370 375 380

Ile Leu Tyr Val Thr Val Gln Gln Pro Glu His Tyr Ser Gly Ile Gln  
385 390 395 400

Leu Gly Glu Phe Ala Asn Pro Ile Leu Glu Arg Ala Ser Ala Met Lys  
405 410 415

Asp Ser Leu Asn Leu Gln Thr Thr Ala Lys Ala Leu Glu Gln Val Ser  
420 425 430

Gln Gln Ser Pro Tyr Pro Met Pro Ser Val Lys Asp Ile Ser Pro Gly  
435 440 445

Asp Leu Ala Glu Glu Leu Arg Arg Asn Leu Val Gln Pro Ile Val Val  
450 455 460

Gly Thr Gly Thr Lys Ile Lys Asn Ser Ser Ala Glu Glu Gly Lys Asn  
465 470 475 480

Leu Ala Pro Asn Gln Gln Val Leu Ile Leu Ser Asp Lys Ala Glu Glu  
485 490 495

Val Pro Asp Met Tyr Gly Trp Thr Lys Glu Thr Ala Glu Thr Leu Ala  
500 505 510

Lys Trp Leu Asn Ile Glu Leu Glu Phe Gln Gly Ser Gly Ser Thr Val  
515 520 525

Gln Lys Gln Asp Val Arg Ala Asn Thr Ala Ile Lys Asp Ile Lys Lys  
530 535 540

Ile Thr Leu Thr Leu Gly Asp  
545 550

<210> 2

<211> 46

<212> DNA

<213> Artificial sequence

<220>

<223> Description of the artificial sequence:primer

<400> 2

gtcgacttag tctcctaaag ttaatttaat ttttttaatg tttttg

46

<210> 3

<211> 21

<212> DNA

<213> Artificial sequence

<220>

<223> Description of the artificial sequence:primer

<400> 3

ggatccggga caggcactcg c

21

<210> 4

<211> 43

<212> DNA

<213> Artificial sequence

<220>

<223> Description of the artificial sequence:primer

<400> 4

cataaatagt cccacgtttg gccccggatc cacgcggaac cag

43

<210> 5

<211> 51

<212> DNA

<213> Artificial sequence

<220>  
<223> Description of the artificial sequence:primer

<400> 5  
gttggtaa ctacgattgg gacctccaga gttgcattcc tcagcaatcg g 51

<210> 6  
<211> 48  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of the artificial sequence:primer

<400> 6  
gttcaaggaa ctctccattc caccggat aaaactagaa gcaaattg 48

<210> 7  
<211> 49  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of the artificial sequence:primer

<400> 7  
tgtataaaca tccttaccgt ccccacctcc ccctgcaaga atactgttc 49

<210> 8  
<211> 30  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of the artificial sequence:primer

<400> 8  
ccgcatatgg ccaaacgtgg gactatgg 30

<210> 9  
<211> 32  
<212> DNA  
<213> Artificial sequence

<220>  
<223> Description of the artificial séquence:primer

<400> 9  
ggctcgagtt agtctcctaa agttaatgta at 32